Are We Inclusive? Accessibility Challenges in Philippine E-Government Websites

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Article

Are We Inclusive? Accessibility Challenges in Philippine E-Government Websites

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Abstract: Website accessibility is critical for e-government in the Philippines to ensure all citizens, including those with disabilities, can access essential information and services. This study evaluates government website accessibility based on the Web Content Accessibility Guidelines (WCAG) of the World Wide Web Consortium (W3C), which provide comprehensive checkpoints for assessment. A combination of automated testing tools and visual inspection was employed to achieve a thorough evaluation. Compliance percentages for web accessibility ranged from 28.00% to 82.67%, with an average of 53.43%, highlighting a need for improvement, particularly in advanced web presence stages. Usability compliance was higher, ranging from 62.32% to 97.10%, with an average of 82.50%. Significant usability checkpoints with low compliance rates were identified, emphasizing areas where government agencies must focus to enhance user experience and accessibility. The study recommends specific tools for evaluating these accessibility checkpoints and underscores the importance of improving government website usability. Enhancing accessibility is vital for fostering inclusivity, increasing citizen engagement, and promoting trust through transparent governance. Improved accessibility is expected to positively impact local and regional development by enabling better service delivery and encouraging active public participation in government initiatives.

Keywords: inclusivity; web accessibility; web presence; website usability; e-government

1. Introduction

E-government serves multiple purposes, including enhancing administrative efficiency by streamlining processes, promoting democratic governance by facilitating citizen participation and feedback mechanisms and fostering trust between citizens, the private sector, and governments through increased transparency and accountability [11]. However, achieving these goals has been difficult due to usability problems in many e-government websites [12]. This has led to increasing demands for assessing the usability of e-government websites, which are widely recognized as the main way for governments to interact with citizens. Several studies have investigated the content and web accessibility of government websites, focusing specifically on their web presence and website usability [13–15]. These studies highlight the critical role of accessible web design in promoting equal opportunities for all users. Research indicates that implementing accessible design features on government websites not only ensures that individuals with disabilities can access information and services but also enhances overall usability for all visitors. By incorporating accessible web design principles, government websites can better serve the diverse needs of their citizens and promote inclusivity. Implementing accessible design features not only accommodates the needs of individuals with disabilities but also enhances the overall user experience for all visitors [16]. A strong web presence and website usability are of utmost importance in effectively serving e-citizens. This ensures that citizens can easily access information and services, fostering transparency and accountability in governance.

Government websites can be checked for accessibility compliance by following WCAG standards, which include providing text alternatives, ensuring keyboard accessibility, and making content easy to

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understand. [10,13]. Moreover, evaluating government websites for usability also involves considering factors such as intuitive navigation, clear and concise content, and efficient forms and transactions. By adhering to the WCAG standards and considering usability principles, government websites can enhance the overall user experience and ensure that all citizens, regardless of abilities, can effectively access information and utilize online services. Various approaches have been utilized to conduct these studies, encompassing both automated and manual approaches. According to [36], Automated tools can be just as effective as manual methods in pinpointing web accessibility problems. Most studies used automated methods, utilizing popular tools such as WAVE (Web Accessibility Evaluation Tool), Google Lighthouse, and TAW (Test d'Accessibilitat Web) [8,9,25].

In the Philippines, the legal basis of web accessibility can be traced back to several laws and policies. The most notable among these is the Republic Act No. 7277, or the Magna Carta for Persons with Disabilities (PWDs) [1]. This law mandates the government to ensure that PWDs are provided with equal opportunities, particularly in the field of education, employment, and accessibility to public facilities and services, including information and communications technology (ICT). The National Council on Disability Affairs (NCDA) issued the Implementing Rules and Regulations (IRR) of the Magna Carta, which explicitly states that "all government websites shall comply with the guidelines on web accessibility" [7]. Additionally, the Department of Information and Communications Technology (DICT) issued Memorandum Circular 004 (2017) policy that provides guidelines on the implementation of web accessibility in government websites [29]. The memorandum circular provides specific guidelines for achieving web accessibility, including the use of alternative text for non-text content, the provision of captions and transcripts for multimedia content, and the use of descriptive links and headings. It also requires government agencies to conduct regular accessibility audits of their websites and web-based applications to ensure compliance with the WCAG 2.0 Level AA. Moreover, the memorandum circular mandates the establishment of a Web Accessibility Compliance Team (WACT) within each government agency, responsible for ensuring compliance with web accessibility guidelines and conducting regular accessibility audits of the agency's website. These laws and policies serve as the legal basis for the implementation of web accessibility standards in the Philippines, particularly for the benefit of PWDs. As per the 2010 Census of Population and Housing in the Philippines, out of the total household population of 92.1 million, approximately 1.44 million individuals, constituting 1.57 percent, were reported to have a disability. [30]. This presents an opportunity for governments to improve their web accessibility. As such, this study aims to contribute to the existing knowledge by evaluating the web presence and usability of e-government websites in the Philippines. This endeavor is particularly significant considering the limited understanding of e-government website usability within the country. Ensuring equitable access to government services for all citizens, including those with visual, auditory, dexterity, and cognitive impairments, is imperative. This evaluation is important because it will help identify any barriers or challenges that may exist, and provide recommendations for improving accessibility and usability. Having an accessible website supports government agencies in their commitment to serving all members of the public equally.

2. Accessibility Issues and Concerns

2.1. Visual Impairments

Accessibility is a crucial aspect of ensuring equal access and opportunities for individuals with disabilities in various settings, including digital platforms [31]. In the context of visual difficulties, individuals with disabilities may face challenges in accessing content that relies solely on visual cues such as images, videos, and diagrams [32,33]. This can impact their ability to understand and engage with the information presented. Numerous studies have highlighted the difficulties faced by individuals with visual impairments when accessing digital content. For example, a study conducted by [34] found that only 2.4% of research articles delivered in PDF format were accessible to people with disabilities. In terms of reading text, individuals with visual difficulties may also struggle with text that is too small or not presented in a high-contrast format. This can make it challenging for them

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to read and comprehend the content effectively. For individuals with visual difficulties, developers can implement alternative text for images and graphics, allowing screen readers to describe the content to users who are unable to see it. Additionally, providing options to adjust text size and contrast can greatly improve readability for individuals with visual impairments [40].

2.2. Auditory Impairments

Individuals with auditory disabilities may encounter barriers when audio content is not adequately transcribed or captioned. This can significantly hinder their access to information presented through podcasts, videos, and other audio-based media [2]. Moreover, individuals with auditory difficulties may face challenges with poorly designed sound interfaces or systems that do not accommodate their specific needs, affecting their overall user experience. In a study conducted by [5], it was found that a majority of online videos lack accurate captions, making it challenging for individuals with auditory impairments to fully comprehend the content. Furthermore, there is a need for developers to address these accessibility issues by incorporating features that cater to individuals with visual and auditory impairments. For individuals with auditory difficulties, developers should ensure that all audio content is accompanied by accurate transcriptions or captions. This not only benefits individuals with hearing impairments but also provides a better user experience for all users, especially in noisy environments where audio may be difficult to hear.

2.3. Dexterity Impairments

Individuals with dexterity impairments may encounter challenges in navigating digital interfaces that require precise and coordinated movements, such as using a mouse or typing on a keyboard [6]. This can limit their ability to interact with websites, applications, and other digital platforms effectively. Developers and designers can address these challenges by implementing features such as keyboard shortcuts, voice command options, and customizable input methods. These accommodations can provide individuals with dexterity impairments the flexibility to interact with digital content in a way that suits their abilities and needs.

2.4. Cognitive Differences

In the context of cognitive differences, individuals with disabilities may face additional challenges when interacting with digital content [3]. For example, individuals with cognitive differences may have difficulty processing complex information or navigating websites with cluttered layouts. Developers and designers can address these challenges by simplifying the language used in content, providing clear navigation paths, and minimizing distractions on the interface. Furthermore, individuals with cognitive differences may benefit from features such as visual cues, consistent layout designs, and the option to customize the display settings to reduce cognitive overload. By incorporating these features, developers can create a more inclusive digital environment that caters to individuals with cognitive differences.

It is evident that there are numerous accessibility issues and concerns that individuals with disabilities face when interacting with digital content. The lack of accommodations for visual, auditory, dexterity, and cognitive impairments can create significant barriers to equal access and opportunities. It is crucial for developers and designers to prioritize accessibility in their digital platforms by implementing features such as alternative text for images, accurate transcriptions or captions for audio content, customizable input methods for dexterity impairments, and simplified language and clear navigation for cognitive differences. By doing so, they can create a more inclusive digital environment that caters to individuals with disabilities, ultimately promoting equal access and participation for all users.

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3. Methodology

3.1. Website Accessibility Framework

To fully achieve an inclusive Philippine government agency website, it is essential that the website meets the requirements for both web presence and website usability, as shown in Figure 1.

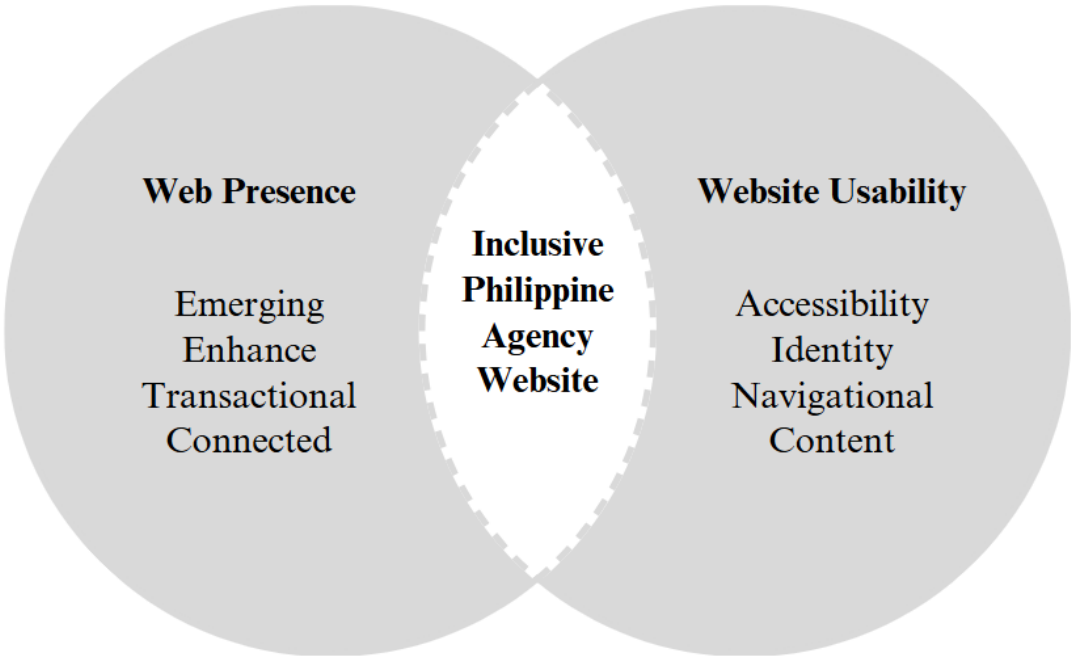

Figure 1. Web accessibility framework for Philippine government wesite.

The evaluation process involves a total of 144 checkpoints, encompassing both aspects of web presence and usability. Web presence is assessed through a set of 75 specific checkpoints, with a website required to meet at least 80% of these to be deemed compliant. In addition, website usability is evaluated based on a distinct set of 69 guidelines, with full compliance achieved only when 100% of these usability checkpoints are satisfied. Websites that meet between 85% and 99% of the usability guidelines are considered partially compliant, while those satisfying fewer than 85% of the guidelines are classified as non-compliant. This comprehensive framework ensures that both web presence and usability standards are rigorously evaluated, paving the way for websites that are truly accessible and inclusive for all users.

3.2. Website Presence

The web presence of a government agency plays a crucial role in its ability to effectively serve and engage with citizens [38]. It refers to its online presence, including the availability of information, services, and tools. A strong web presence allows citizens to easily access government services and information, resulting in greater transparency and accountability [39].

Stage 1 (emerging), an initial stage of web presence where a website or digital platform is in its early development phase, focusing on establishing basic features and providing essential information to users. This stage consist of 26 checkpoints. Stage 2 (enhance) goes beyond its basic features and incorporates additional elements to improve user experience, interaction, and access to information. Stage 2 consist 17 checkpoints to review various enhancements to make the platform more dynamic, user-friendly, and informative. Stage 3 (transactional) facilitates online transactions and interactions, providing users with a range of services and features. This consist of 12 checkpoint focusing on the implementation of various functionalities to enable seamless and secure online transactions. Lastly, stage 4 (connected) establishes a comprehensive and interconnected online ecosystem, fostering active engagement and collaboration between the organization or government and its users or citizens.

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This stage consist of 20 checkpoints. A total of 75 checkpoints are included across all web presence categories as shown in Table 1.

Table 1. Web Presence Checkpoints.

Stages	Description	Number of checkpoints
Stage 1: Emerging	- Basic Web Feature - Information About the Agencies - Strategic Information of the Agency - Resources (Downloads, Archives, etc.)	26
Stage 2: Enhance	- Accessible information at the website, regularly updated (at least every 1.5 months) - Search function and sitemap - Forms, publications, and other downloadable documents - Interactive elements are present - Bid announcements and other external links	17
Stage 3: Transactional	- Online Services - Security - Simple e-Participation - Other features such as e-mail alerts, job opportunities, and e-signature	12
Stage 4: Connected	- Mission statement or policy for e-participation - Schedule of forthcoming e-participation events - Archived data regarding past e-participation endeavors - Tools for e-participation to collect public opinions - Public feedback on national strategies, policies, and e-services - Disclosure of outcomes from citizen feedback - Repository of government replies to citizen inquiries and contributions	20

3.3. Website Usability

Website usability ensures that the website is not only technically accessible but also usable and effective in creating a positive user experience [37]. A government agency's website serves as the primary point of access for citizens to obtain information, access services, and engage with their government. Therefore, the usability of the website directly impacts the accessibility of government services and the overall user experience. It also ensures that the website is inclusive and accessible to all users. The usability website testing checkpoints are divided into different sections: (1) accessibility, (2) identity, (3) navigation, and (4) content. Accessibility prioritizes easy access to information and functionalities for all users. Identity refers to the distinct and recognizable characteristics and elements that represent a company or website. Transactional enables users to engage in online services and transactions. It involves the implementation of features and functionalities that facilitate secure online transactions and interactions. Lastly, connected establishes a comprehensive and interconnected online ecosystem, facilitating active engagement and collaboration between the government and its users or citizens. It involves the implementation of various features and functionalities that promote transparency, e-participation, and effective communication. A total of 69 checkpoints for all website usability sections are shown in Table 2.

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Table 2. Web Usability Checkpoints.

Sections	Description	Number of checkpoints
Section 1: Accessibility	- User Experience such as reasonable loading time - Content and Text - Strategic Information of the Agency - Error Handling	17
Section 2: Identity	- Company / site logo is prominently placed - The homepage can be understood within 5 seconds - Company information is easily accessible - Contact information, like the Contact Us link, is clearly visible	18
Section 3:Navigational	- The main navigation is readily recognizable. - Clear and succinct labels are used for navigation - Supports browser standard functions like 'back', 'forward', and 'bookmark' - The company logo is linked to the homepage - Links are uniform and straightforward to recognize - Accessing the site search is convenient.	14
Section 4: Content	- Major headings are easily understood and descriptive - Essential content appears before the fold - Consistency is maintained in styles and colors - Emphasis, such as bolding, is used sparingly - Ads and pop-ups are not disruptive, and content does not trigger seizures - The main text is brief yet informative - HTML page titles provide clear descriptions - Non-textual content includes text alternatives - Language, terminology, and tone are appropriate and comprehensible to the target audience	20

3.4. Website Selection

The study obtained a comprehensive list of government websites by accessing the official government directories of websites. The list includes the URLs of the government websites for easy access. Each selected website was visited and evaluated for its website presence and accessibility. A total of 45 government websites were obtained. Among these websites, 37 were found to have corresponding URLs. Upon further evaluation, it was discovered that out of the 37 websites with URLs, only 27 were accessible and visible. Table 3 shows the list of 27 government websites that were utilized for evaluating web presence and website usability.

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Table 3. List of Government Agency Websites.

No	Agency/Code	URL
1	Office of the Vice President (OVP)	http://www.ovp.gov.ph/
2	Department of Agrarian Reform (DAR)	http://dar.gov.ph/
3	Department of Agriculture (DA)	http://www.da.gov.ph/
4	Department of Education (DEPED)	http://www.deped.gov.ph/
5	Department of Energy (DOE)	https://www.doe.gov.ph/
6	Department of Environment and Natural Resources (DENR)	http://denr.gov.ph/
7	Department of Finance (DOF)	http://www.dof.gov.ph/
8	Department of Foreign Affairs (DFA)	http://www.dfa.gov.ph/
9	Department of Health (DOH)	http://www.doh.gov.ph/
10	Department of the Interior and Local Government (DILG)	http://www.dilg.gov.ph/
11	Department of Justice (DOJ)	http://www.doj.gov.ph/
12	Department of Labor and Employment (DOLE)	http://www.dole.gov.ph/
13	Department of National Defense (DND)	http://www.dnd.gov.ph/
14	Department of Public Works and Highways (DPWH)	http://www.dpwh.gov.ph/
15	Department of Science and Technology (DOST)	http://www.dost.gov.ph/
16	Department of Social Welfare and Development (DSWD)	http://www.dswd.gov.ph/
17	Department of Trade and Industry (DTI)	http://www.dti.gov.ph/
18	Commission on Higher Education (CHED)	https://ched.gov.ph/
19	Commission on Filipino Overseas (CFO)	http://www.cfo.gov.ph/
20	Governance Commission for GOCC's (GCG)	http://gcg.gov.ph/
21	Metropolitan Manila Development Authority (MMDA)	http://www.mmda.gov.ph/
22	Mindanao Development Authority (MINDA)	http://www.minda.gov.ph/
23	National Security Council (NSC)	http://www.nsc.gov.ph/
24	Presidential Legislative Liaison Office (PLLO)	http://pllo.gov.ph/
25	Presidential Management Staff (PMS)	http://www.pms.gov.ph/
26	Technical Education and Skills Development Authority (TESDA)	http://www.tesda.gov.ph/
27	Department of Information and Communication Technology (DICT)	https://dict.gov.ph/

3.5. Evaluation Procedure

Evaluation of the websites follows a process of opening the URL for visual inspection. This evaluation occurred between June and August 2024. Recommended tools were used to test the website for accessibility. To ensure compliance with the Web Content Accessibility Guidelines, each website was inspected for website accessibility. These include text descriptions for images and media, ensuring content flows and can be presented in different ways, creating easily identifiable content, emphasizing keyboard navigation, providing sufficient time for users to consume content, avoiding design elements that could trigger seizures or physical reactions, structuring content to enhance navigation and orientation, designing text to be readable and understandable, maintaining consistent interface behavior, offering help for input where necessary, and ensuring compatibility with various devices and user agents. Verify if the website has complied with the checkpoint. Make a note of any accessibility issues, then provide recommendations to further enhance the website. Regular monitoring of website accessibility is necessary to ensure continued compliance and improvements as needed.

3.6. Website Evaluation Tools

Studies have utilized a combination of both automated testing tools and visual inspection can provide a more comprehensive evaluation of website accessibility [35,42–44]. Automated testing tools can help researchers quickly evaluate a large number of websites, but it is important to note that they may not detect all accessibility issues [43]. Visual inspection, on the other hand, can provide a more detailed understanding of the website's accessibility but can be time-consuming [44]. Using a combination of reliable methods, including automated testing tools and visual inspection can provide a more comprehensive evaluation of website accessibility. A Philippine agency, Department of

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Information and Communications Technology (DICT) provides the guidelines for web accessibility intended for government agencies [45]. It includes guidelines and checkpoints to evaluate web presence and website usability. These guidelines are based on the Web Content Accessibility Guidelines (WCAG) developed by the World Wide Web Consortium (W3C). The recommended tools were used to review the checkpoints of the government websites' accessibility as shown in Table 4.

Table 4. Recommended Evaluation Tools.

Evaluation Tool	Purpose
Achecker	This tool verifies individual HTML pages to ensure they conform to accessibility standards, making the content accessible to all.
Contrast Checker	A web tool that can check the level of contrast based already on WCAG 2.0 parameters
European Internet Inclusion Initiative	Automatically detects barriers in web documents (including PDF documents)
Wave	Web Accessibility Evaluation Tool
W3C Markup Validation Service	This validator checks the markup validity of web documents in formats like HTML, XHTML, SMIL, and MathML.
Developer Tool of Firefox/Google Chrome	Used for checking loading time of webpages
Screen Reader Browser Extension	Used to test webpages on the screen reader

Automated tools can efficiently detect common accessibility barriers such as missing alt text, inadequate color contrast between background and foreground, and issues related to keyboard navigation and form controls, they may not capture the full range of potential accessibility concerns.

As shown in Figure 2, automated tools can struggle to detect context-based errors, such as improper use of ARIA (Accessible Rich Internet Applications) or the nuances of how screen readers interpret content. Therefore, it is essential to perform visual inspection alongside automated checks, particularly to verify the accuracy of results in areas like alt-text descriptions, color contrast, and other critical evaluation checkpoints. Visual inspection allows evaluators to ensure that the automated tools' findings align with real-world user experience and accessibility guidelines, addressing technical compliance and usability considerations for individuals with diverse disabilities. This dual approach—combining automated evaluation with manual inspection—enhances the reliability of the accessibility audit, ensuring that websites provide a truly inclusive experience for all users.

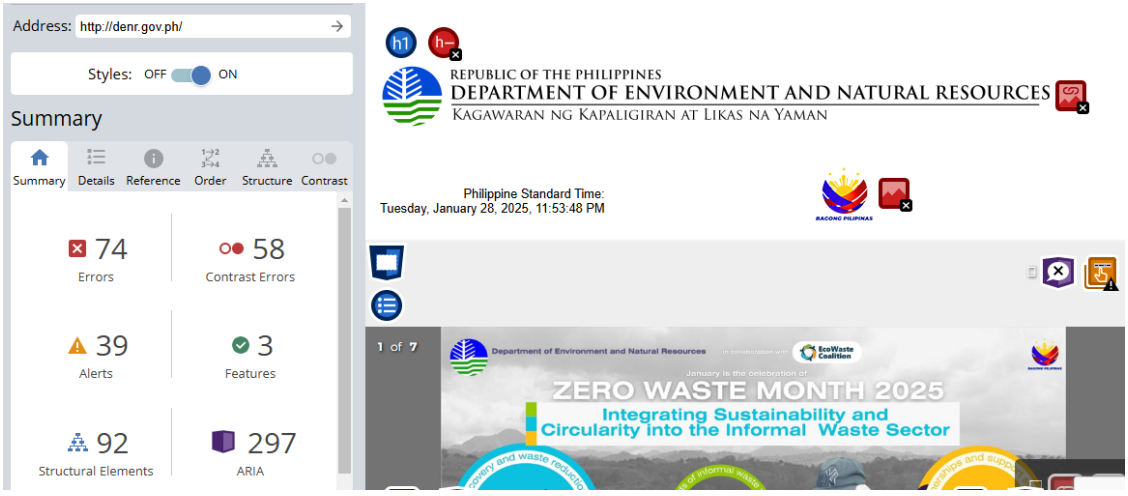

Figure 2. Using automated tools in evaluation

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4. Results and Discussion

4.1. Web Presence Results

The web presence stages and the corresponding percentage of compliance of different government agencies with each stage. The compliance rates were divided into four stages: (1) emerging, (2) enhanced, (3) transactional, and (4) connected.

Figure 3 shows the emerging web presence stage, the websites achieved an average compliance rate of 79.34% on the 26 checkpoints. Furthermore, 16 out of 27 websites successfully met the required percentage of 80%. The agencies that demonstrated the highest compliance rates are DENR, DOST, and DTI, each achieving a compliance rate of 92.31% or 24 checkpoints. Conversely, NSC exhibited the lowest compliance rate with only 38.46% or 10 checkpoints.

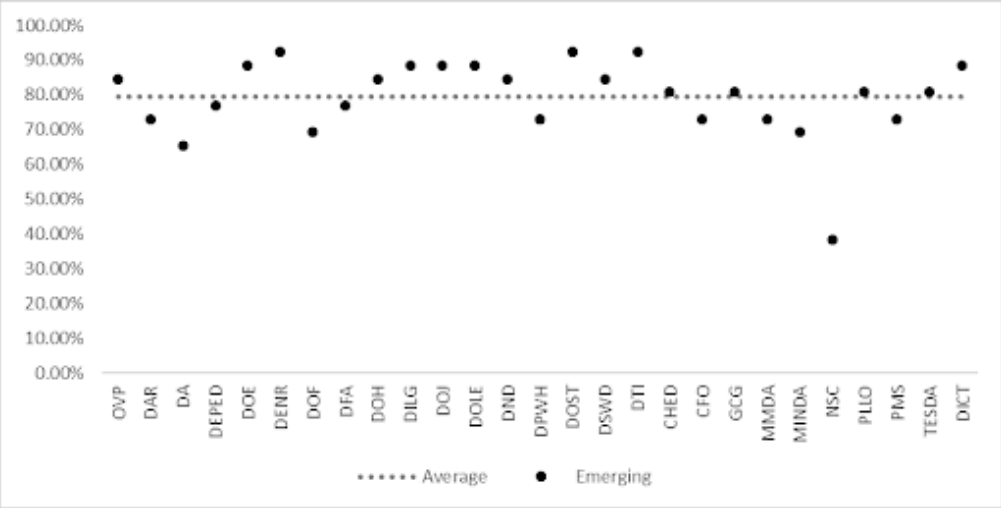

Figure 3. Result of the emerging web presence stage

Figure 4 shows the stage 2, enhanced web presence, the compliance percentage significantly drops in all websites, averaging at 79.34%. Only two websites, DTI with 88.24% and OVP with 82.35%, were able to surpass the required percentage. This indicates that 93% (25) of the websites failed to meet the minimum requirement of 80% compliance for web presence.

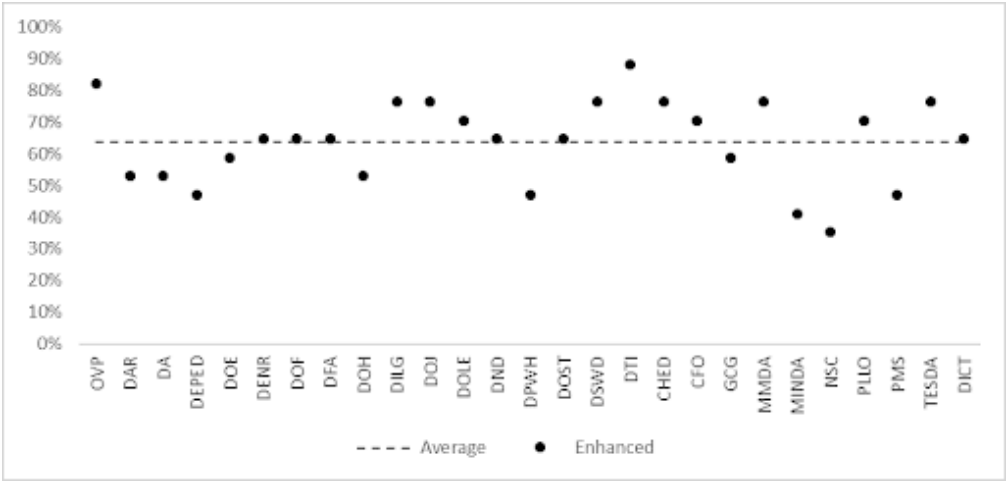

Figure 4. Result of the enhanced web presence stage

Figure 5 shows the stage 3, transactional, none of the websites were able to meet the required percentage of 80%. The average compliance rate across all websites is only 40.74%. The highest percentage compliance rate achieved is 66.67% by DEPED, DOST, and DSWD.

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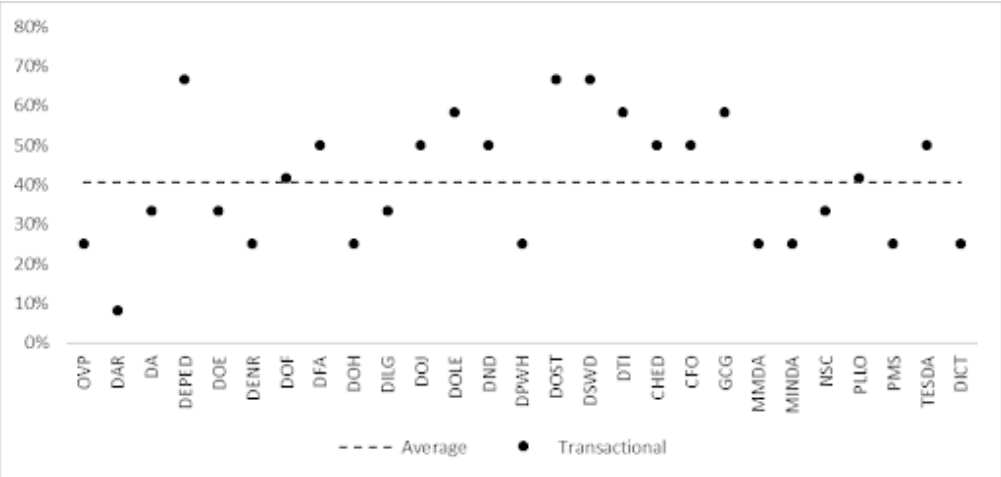

Figure 5. Result of the transactional web presence stage

Finally, Figure 6, connected, the overall compliance percentages for all agencies are relatively low, with an average of 18.52%. However, DTI stands out with a compliance rate of 80%, being the only website that passed the required percentage. On the other hand, the remaining websites fall below 40% compliance. This highlights the high level of web interactivity and data exchange required in stage 4.

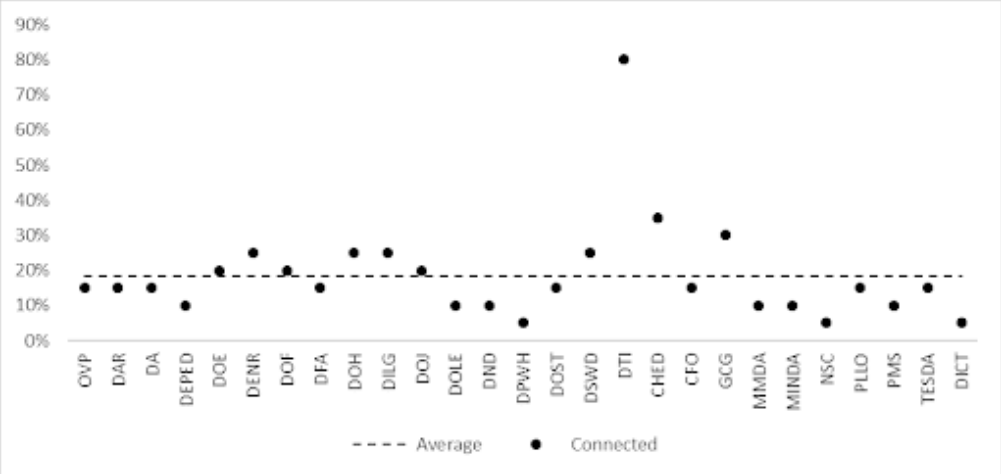

Figure 6. Result of the connected web presence stage

Table 5 shows the number of web presence compliant and non-compliant checkpoints for each government agency. Only the DTI website passed with a percentage of 82.67%, while the NSC has the lowest compliance percentage at 28%. Overall, the average compliance percentage for all government agencies in all four stages is 53.43%, indicating that there is still much room for improvement in their web presence. Government agencies should focus on enhancing their websites to improve compliance with web presence stages.

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Table 5. Web Presence Checkpoints with Compliance Rate.

No	Websites	Complied Checkpoints (%)	No	Websites	Complied Checkpoints (%)
1	OVP	42 (56%)	15	DOST	46 (61.33%)
2	DAR	32 (42.67%)	16	DSWD	48 (64%)
3	DA	33 (44%)	17	DTI	62 (82.67%)
4	DEPED	38 (50.67%)	18	CHED	47 (62.67%)
5	DOE	41 (54.67%)	19	CFO	40 (53.33%)
6	DENR	43 (57.33%)	20	GCG	44 (58.67%)
7	DOF	38 (50.67%)	21	MMDA	37 (49.33%)
8	DFA	40 (53.33%)	22	MINDA	30 (40%)
9	DOH	39 (52%)	23	NSC	21 (28%)
10	DILG	45 (60%)	24	PLLO	41 (54.67%)
11	DOJ	46 (61.33%)	25	PMS	32 (42.67%)
12	DOLE	44 (58.67%)	26	TESDA	43 (57.33%)
13	DND	41 (54.67%)	27	DICT	38 (50.67%)
14	DPWH	41 (54.67%)			

Table 6 shows checkpoints with compliance rate below 50% that need to be improved by government agency websites in different stages of web presence, from Stage 1 (Emerging) to Stage 4 (Connected). It highlights that as the stage gets higher, the compliance rate of the checkpoints decreases, indicating that there is a need for more improvement in the advanced stages. For instance, some of the checkpoints in Stage 4 have 0% compliance rate, such as e-signature and Opinion Polls.

Table 6. Web Presence Checkpoints With Low Compliant Rate.

Stages	Checkpoints that needs improvement	Compliance Rate
Stage 1: Emerging	Philippines Standard Time	48.15%
	Site Map	37.04%
	Citizen's Charter	37.04%
	Archives	33.33%
Stage 2: Enhanced	Multiple Languages	18.52%
	User login and password	14.81%
	Wireless technology is used to send messages to mobile devices	7.41%
Stage 3: Transactional	Captcha	18.52%
	e-Mail alerts for participation	14.81%
	Confirmation of request	3.70%
	e-Signature	0.00%
Stage 4: Connected	Discussion Forums	3.70%
	Opinion Polls	0.00%

In addition, each checkpoint holds significant importance in ensuring compliance with standards and optimizing the user experience. Starting with Stage 1, accurately displaying the local time, especially in the context of the Philippines Standard Time, is vital for users to synchronize with events and deadlines efficiently. The Emerging Site Map and Citizen's Charter are foundational elements that provide clarity and transparency in navigating the website and understanding governmental processes and services. Archives serve as a repository of historical data and documents, offering valuable insights and reference points for users seeking information or tracking past events. Moving to Stage 2, supporting Multiple Languages expands accessibility and inclusivity, accommodating users from diverse linguistic backgrounds. Enhanced User Login and Password features bolster security

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while ensuring a seamless and user-friendly authentication process. Leveraging Wireless Technology for Mobile Messages facilitates instant communication and updates, enhancing user engagement and responsiveness. In Stage 3, Captcha integration strengthens security measures, protecting against automated bots and unauthorized access. Transactional Email Alerts provide timely notifications, keeping users informed and involved in relevant activities. Confirmation of Request and e-Signature functionalities add layers of verification and authorization, enhancing the integrity and security of transactions. Finally, in Stage 4, Discussion Forums foster community engagement and collaboration, while Connected Opinion Polls gather valuable feedback and insights, shaping decision-making processes and fostering a sense of involvement among users. Each checkpoint, when meticulously addressed and optimized, contributes to a compliant, user-friendly, and impactful web presence. Overall, it suggests that agencies should focus on improving the checkpoints with low compliance rate to enhance their web presence and provide better services to their constituents.

4.2. Website Usability Results

The results of the evaluation of the government agency websites in terms of usability, specifically in the areas of accessibility, identity, navigation, and content.

Figure 7 shows the Accessibility section which focuses on how easy it is for all users to access and use the website. The table shows that most government agency websites scored well in this section, with an average score of 85.19%. Specifically, 16 out of 27 agencies scored above 85%, with the highest score being 100% for DICT. The agency with the lowest score of 64.71% is DOH, DOST and DSWD.

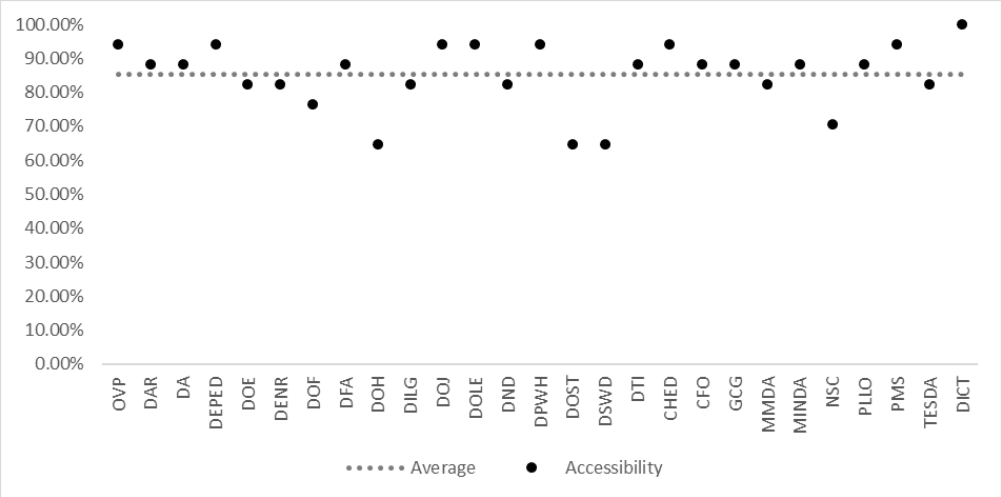

Figure 7. Result of the accessibility section

In the Identity section, Figure 8 shows that government agency websites have an average score of 78.60%. This section refers to how well a website's design reflects the agency's identity and branding. Only 8 out of 27 agencies scored above 85%, with the highest score being 94.44% for DTI and CFO. On the other hand, five agencies, DEPED, DFA, DND, NSC and PMS, scored below 70%, which indicates a need for improvement in their website design to better reflect their identity and branding.

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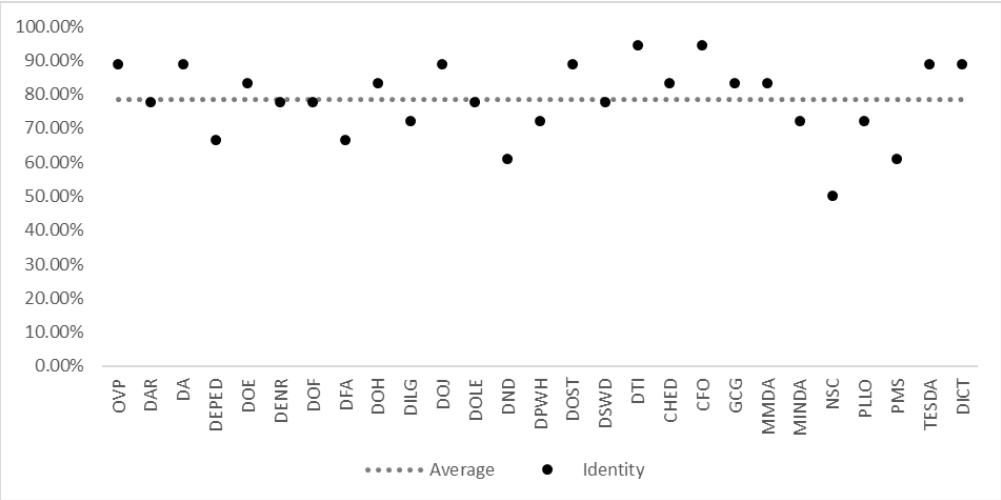

Figure 8. Result of the identity section

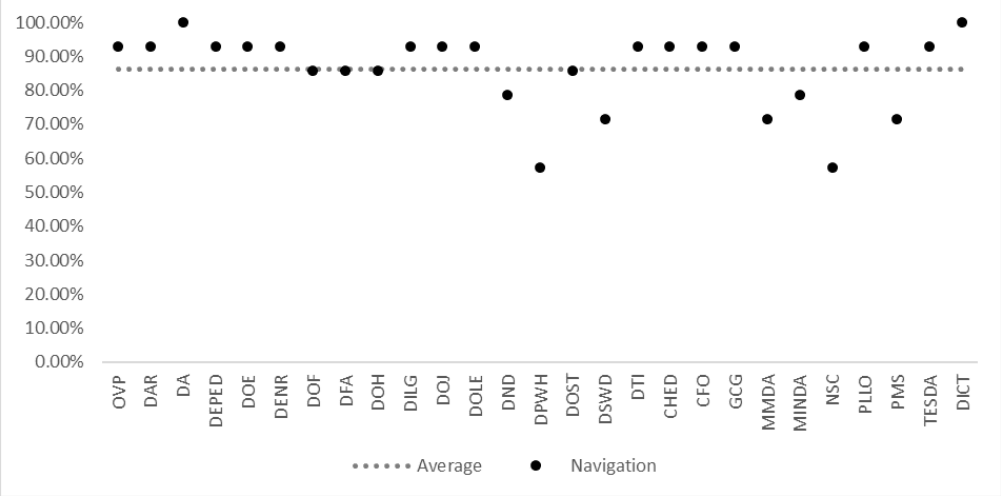

Figure 9. Result of the navigation section

Figure 11 shows the Navigation section which measures how easily users can navigate the government agency websites. It indicates that most government agency websites scored well in this section, with an average score of 86.24%. Specifically, 20 out of 27 agencies scored above 85%, with the highest score being 100% for DA and DICT. On the other hand, the agencies with the lowest scores are DND, DPWH, DSWD, MMDA, MINDA, NSC and PMS, scoring below 80%. It is worth noting that navigation is crucial in ensuring a user-friendly website, as it affects user experience and engagement.

Finally, Figure 10 shows the Content section which refers to the information displayed on the government agency websites. From the figure, it can be seen that DFA, DOJ, DPWH, CHED and DICT are fully compliant with the content checkpoints with a score of 100%. OVP, DOE, DENR, DILG, DOLE, DTI, CFO, MMDA and MINDA are partially compliant with a score above 85%. On the other hand, DAR, DA, DEPED, DOH, DND, DOST, DSWD, GCG, NSC, PLLO, PMS and TESDA scored below 85%, indicating that they are non-compliant with the content checkpoints. The average score for this section is 81.11%, indicating that there is still a need for improvement in the content displayed on government agency websites.

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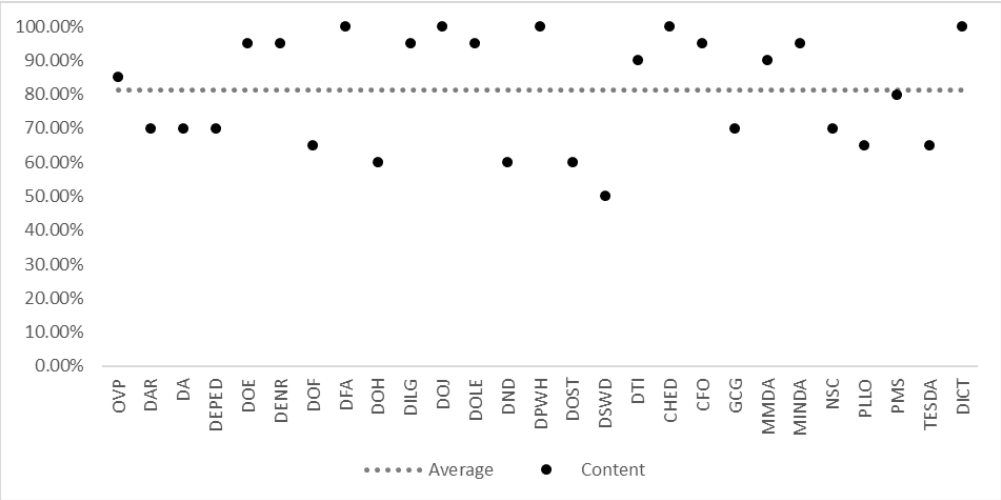

Figure 10. Result of the content section

Table 7 shows the number of web usability complied and not complied checkpoints and the overall compliance percentage of each government agency. The average overall percentage of compliance for all agencies is 82.50%. Specifically, 12 out of 27 agencies are classified as partially compliant and scored above 85%, with the highest score being 97.10% for the DICT. However, 15 out of 27 agencies are considered noncompliant, with the lowest score being 62.32% for NSC. Overall, there is room for improvement for the government agency websites in terms of meeting the usability standards.

Table 7. Website Usability Checkpoints with Compliance Rate.

No	Websites	Complied Checkpoints (%)	No	Websites	Complied Checkpoints (%)
1	OVP	(62) 89.86%	15	DOST	(51) 73.91%
2	DAR	(56) 81.16%	16	DSWD	(45) 65.22%
3	DA	(59) 85.51%	17	DTI	(63) 91.30%
4	DEPED	(55) 79.71%	18	CHED	(64) 92.75%
5	DOE	(61) 88.41%	19	CFO	(64) 92.75%
6	DENR	(60) 86.96%	20	GCG	(57) 82.61%
7	DOF	(52) 75.36%	21	MMDA	(57) 82.61%
8	DFA	(59) 85.51%	22	MINDA	(58) 84.06%
9	DOH	(50) 72.46%	23	NSC	(43) 62.32%
10	DILG	(59) 85.51%	24	PLLO	(54) 78.26%
11	DOJ	(65) 94.20%	25	PMS	(53) 76.81%
12	DOLE	(62) 89.86%	26	TESDA	(56) 81.16%
13	DND	(48) 69.57%	27	DICT	(67) 97.10%
14	DPWH	(57) 82.61%			

Table 8 shows various sections and their corresponding checkpoints with compliance rate below 65% and require improvement. One significant checkpoint is the compliance rate for images with appropriate ALT tags in the Accessibility section, with only 51.85% compliance. The Identity section has low compliance rates for having a Key Official Corner, fax number, and mobile number. The Navigation section has low compliance rates for providing a clear and well-structured site map or index and indicating the user's current location within the site. The Content section has low compliance rates for providing meta descriptions and text labels for form inputs.

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Table 8. Web Usability Checkpoints With Low Compliant Rate.

Section	Checkpoints that needs improvement	Compliance Rate
Section 1: Accessibility	Images have appropriate ALT tags.	51.85%
	Flash & add-ons are used sparingly.	18.52%
Section 2: Identity	Key Official Corner	48.15%
	Fax Number	29.63%
	Mobile Number	37.04%
	Feedback Form	59.26%
Section 3: Navigation	A comprehensible and organized site map or index is furnished when required	48.15%
	The current location is clearly indicated	59.26%
Section 4: Content	Meta descriptions	44.44%
	All images, including image buttons and hot spots on image maps, are accompanied by suitable alternative text.	48.15%
	Images used solely for decoration purposes are assigned null alt text (alt="") or utilized as CSS backgrounds.	62.96%
	Every linked image is provided with descriptive alternative text.	48.15%
	Text labels are associated with form inputs.	62.96%
	Embedded multimedia content is labeled with accessible text.	51.85%

Moreover, each checkpoint for compliance plays a crucial role in ensuring that the website is accessible to all users, regardless of their abilities or limitations. Accessible images with appropriate ALT tags are essential as they provide alternative text descriptions for users who rely on screen readers or those who have images disabled in their browsers, enabling them to understand the content of the images. Flash and add-on usage must be minimized to ensure compatibility with assistive technologies and to prevent potential barriers for users with disabilities. Identity key official corner, including fax and mobile numbers, ensures that important contact information is readily available and accessible to all visitors, fostering inclusivity. A comprehensible site map or index aids navigation for users with cognitive disabilities or those who may have difficulty navigating complex website structures. A clear indication of the current location within the website helps users orient themselves and efficiently navigate through the content. Additionally, meta descriptions provide succinct summaries of page content, aiding users in understanding the relevance of the page before navigating to it. Text labels for form inputs are essential for users who rely on assistive technologies to interact with web forms effectively. Proper labeling of embedded multimedia content ensures that users can access and understand audio or video elements on the website. Descriptive alternative text for linked images enhances the user experience by providing context and aiding navigation. Lastly, appropriately handling decorative images ensures that they do not clutter the user experience or confuse users relying on screen readers. Overall, adherence to these checkpoints ensures that the website is accessible to all users, promoting inclusivity and compliance with web accessibility standards. Overall, there is a need to improve website accessibility to ensure that everyone can access and use the website with ease.

4.3. Comparative Analysis

The findings reveal significant disparities in compliance rates across agencies, with the largest gaps observed between web presence and website usability ratings.

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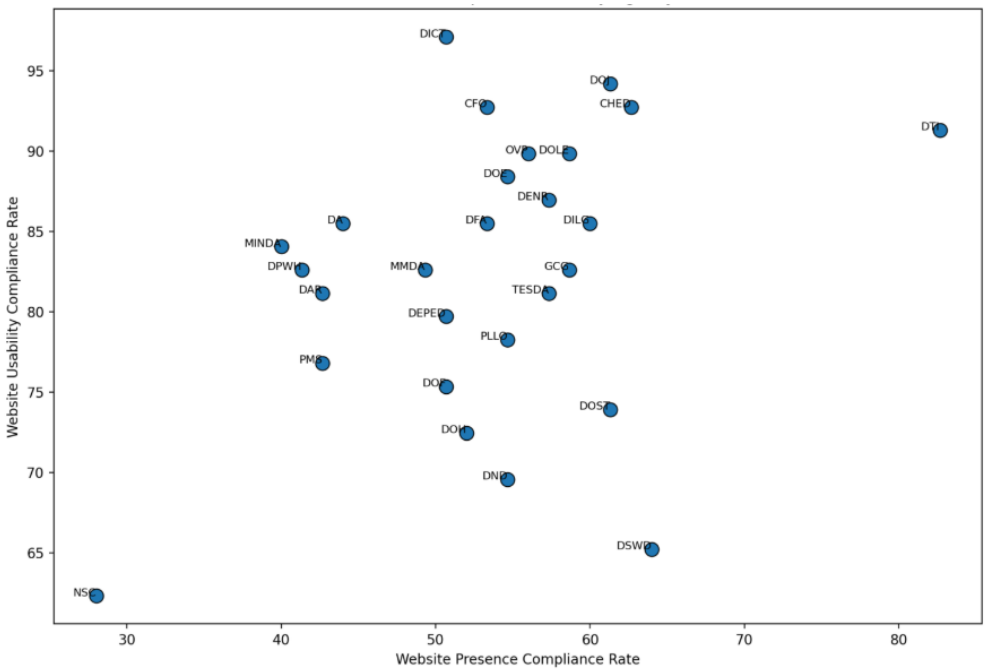

Figure 11. Analysis across government agencies

For instance, the Department of Information and Communications Technology (DICT) recorded the highest usability compliance at 97.10%, surpassing its presence rate of 50.67% by 46.43 percentage points. Similarly, the Department of Justice (DOJ) and agencies like the Commission on Higher Education (CHED) and the Commission on Filipinos Overseas (CFO) showed substantial gaps, with usability rates exceeding presence compliance by 32.87 and 30.08 percentage points, respectively. In contrast, the Department of Social Welfare and Development (DSWD) exhibited the smallest disparity with a mere 1.22 percentage point difference between usability (65.22%) and presence (64.00%). However, certain agencies, such as the National Security Council (NSC), demonstrated underperformance, with presence compliance at only 28.00% and usability at 62.32%, highlighting the challenges faced in achieving balanced compliance. These findings suggest the need for targeted interventions to address the significant gaps and improve overall performance across both web presence and website usability dimensions.

5. Conclusion and Recommendations

The evaluation of website accessibility for government agencies in the Philippines underscores the pressing need for improvements across various accessibility checkpoints. Utilizing the Web Content Accessibility Guidelines (WCAG) developed by the World Wide Web Consortium (W3C), the evaluation revealed significant discrepancies in compliance between web presence and usability. Compliance rates for web presence ranged from 28.00% to 82.67%, with an average of 53.43%, while website usability compliance was notably higher, ranging from 62.32% to 97.10%, with an average of 82.50%. These findings highlight a clear disparity, particularly in the advanced stages of web presence, where some checkpoints, especially in Stage 4 for comprehensive and interconnected online ecosystem demonstrated a concerning 0% compliance rate. To improve their web presence and better serve their constituents, government agencies should prioritize enhancing areas with low compliance, such as images missing appropriate ALT tags in the Accessibility section, missing contact information in the Identity section, lack of clear navigation features like site maps in the Navigation section, and inadequate meta descriptions or form labels in the Content section. These gaps indicate a need for more comprehensive efforts to improve overall website accessibility. Recommendations for addressing these issues include adhering to accessible design principles, conducting regular accessibility audits, collaborating with disability advocacy organizations, and integrating assistive technologies into

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website testing and evaluation processes. Such measures will ensure that government websites are more inclusive and accessible to all users, particularly those with disabilities, fostering a more equitable digital environment.

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